Department of Electrical and Electronic Engineering, California State University, Sacramento

EEE 117 for Spring 2021 will be entirely online in compliance with University and California guidelines. We will NOT meet in-person during the semester.

The lecture period will be a Canvas based Zoom session during the scheduled lecture time. The Canvas based Zoom sessions will be organized as:
>   Monday – Zoom lecture
>   Wednesday – Finish lecture and Problem solving session.
>   Friday - offline study by each individual with no scheduled interaction.

Canvas will ONLY be used for the Zoom sessions.

The course material is published on the ECS Moodle course site.
See the last page of this syllabus for instructions to join the course Moodle site.
The lecture notes are published.
The lectures have been prerecorded in addition to the scheduled Zoom lectures.
Homeworks, quizzes and exams are all online in the Moodle quiz modules.

Online relies on the organization and focus of each student.
It will take self-discipline and hard work to keep up with viewing the lectures, completing homework, and taking weekly quizzes - all online and largely at your own pace.

If you need help, please email me sooner rather than later. I will setup a special Zoom session by appointment basis to answer your questions not covered in the Monday/Wednesday sessions.

Where the "normal" syllabus that follows mentions being on campus in a lecture, we now mean a Canvas based Zoom session.

EEE 117 Network Analysis, 3 units
Spring 2021, Section 1, Call No. 32545, Mon/Wed 11:00 – 11:50 A.M. Web Online
Fri Web Online – individual preparation

Course Content: Review of Sinusoidal steady state, phasors, complex power, three phase power, mutual inductance, series and parallel resonance. Introduction to application of Laplace transforms in network analysis, transfer functions, Bode plots, Fourier series.

Prerequisite: Engr 17 – Introductory Circuit Analysis,
EEE 64 - Introduction to Logic Design (EEE 64 may be taken concurrently)

Corequisite: EEE 117 Lab (EEE 117L is graded separately by each lab instructor)

Textbook: *Electric Circuits*, Nilsson and Riedel, 10th Edition, 2014, Prentice Hall,
ISBN: 978-0133760033

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Office Hours: Tuesday noon to 2 pm – special Zoom by email appointment.

Grading: Midterm I   15%
Midterm II   15%
Final Exam   20%
Homework   30%
Quizzes   20%

Course Goals: Introduce the fundamental tools of linear circuit analysis which is useful to all engineers. Develop the fundamentals of circuits, including wires, resistors, capacitors, inductors, voltage and current sources, and operational amplifiers. Prepare students for more advanced courses in electronic applications and circuit analysis.

Online Course: This course will be offered online with Canvas hosted Zoom lecture sessions on Monday and Wednesday. The Friday time is dedicated self-paced online material includes pre-recorded videos, outside class reading assignments and other online sessions. **All course materials are available on the ECS Moodle site.** See the Moodle course site join instructions at the end of this syllabus.

Homework: Homework assignments will be completed online using ECS Moodle activities in the course Moodle site. There is homework every week and each chapter will have at least one homework assignment. Problems shall either be from the textbook or created by the instructor. Most assignments are released Monday mornings at 6 am and are typically available for three weeks. Most homework assignments are due on Monday mornings at 5:00 am. All homework material is testable whether covered in class or only in the homework assignment. There is no time limit on completing the homework assignment as long as you complete the homework by the due date. **You can "submit" the homework as many times as you wish until you get a perfect 100% on the assignment.** You receive the exact same questions on every attempt on the homework so there is no reason not to attempt a less-than perfect homework score again and again.

Quizzes: There will be a 60 minute quiz each week (except for exam weeks). The quizzes are self-paced online between the hours of 6 am and midnight each Wednesday in the ECS Moodle Quiz activity. The quiz must be completed in one session (no starting nor stopping with a break) in timed one continuous hour. The quizzes are "once and done" with only one submission allowed.

Exams: There will be two 60 minute midterm exams and a two hour final exam during the semester. The exams are a timed test completed online at the <u>scheduled class time</u> or <u>scheduled final exam time</u> using the ECS Moodle Quiz activity as scheduled in the syllabus. The student will use the online access of their choice during the regular class time. Exams are not self-paced and are taken ONLY during the scheduled class time. The exams are "once and done" with only one submission allowed.

Prior written permission is required for all make-up exams and then only with compelling reasons in accordance with and as outlined by University policy.

Grading Policy: The course will be graded in accordance with University guidelines using the "+" and "-" method as called for by the University. Grades may be curved at the instructor's discretion. The class average is usually in the C+ range. Typical (meaning somewhere around this region) grades ranges are:

"A" 94.5 and above   "A-" 89.5 to 94.49

"B+" 87.5 to 89.49   "B" 83.5 to 87.49   "B-" 79.5 to 83.49

"C+" 77.5 to 79.49   "C" 73.5 to 77.49   "C-" 69.5 to 73.49

"D+" 67.5 to 69.49   "D" 63.5 to 67.49   "D-" 59.5 to 63.49

F Below 59.5

EEE 117 - Section 1 - Course Outline – Spring 2021

Week	Date	Chapter	Topics:
1	1-25 1-27 1-29	9.1 – 9.2 9.3	EEE 117 Introduction and Phasor Domain Review Phasor Domain Review
2	2-02 2-04 2-06	9.4– 9.5 9.7 – 9.9	Phasor Domain review Phasor Domain review
3	2-08 2-10 2-12	9.10 – 9.11 10.1 – 10.3	Transformer, Ideal Transformer Instantaneous, Average Power and rms
4	2-15 2-17 2-19	10.4 – 10.6 12.1 – 12.2	Complex Power, Power Calculations, Max Power Defn of Laplace, Step Function
5	2-22 2-24 2-26	12.3 – 12.6 **Exam 1**	Functional Transforms and Operational Transforms **Chapters 9, 10 – Online 11:00 am to 12:00 pm**
6	3-01 3-03 3-05	12.7 12.8 – 12.9	Inverse Transforms and PFE Poles, Zeros, Initial and Final Value Theorems
7	3-08 3-10 3-12	13.1 13.3 13.4 – 13.7	Circuit Elements and Applications in the s Domain The Transfer Function and Steady State Response
8	3-15 3-17 3-19	Appendix E Appendix E	AC Analysis with Bode Diagrams Magnitude Plot, Phase Plot
9			Spring Recess
10	3-29 3-31 4-02	Appendix E	Magnitude and phase plot combined Cesar Chavez Birthday – Campus Closed
11	4-05 4-07 4-09	14.1 – 14.2 14.3	Low-Pass Filter High-Pass Filter
12	4-12 4-14 4-16	14.4 – 14.5 **Exam 2**	Band-pass Filters & Band-reject Filters **Chapters 12, 13, Bode diagram – Online 11:00 am to 12:00 pm**
13	4-19 4-21 4-23	15.1 – 15.3 16.1 - 16.2	First-Order Active Filter Circuits Fourier Series
14	4-26 4-28 4-30	16.3 16.4 – 16.5	Use of symmetry in Fourier Series Alternate Trigonometric Form of the Fourier Series
15	5-03 5-05 5-07	16.6 16.7	Average and rms value of a Periodic function
16	5-10 5-12 5-14		**Bode Diagram – in-class Final Exam Problem** Course wrap-up
17	5-17	**Final Exam**	**Bode Diagrams, Chapters 14, 15 and 16** Monday May 17, 2021 Online 10:15 a.m. – 12:15 p.m.

EEE 117 – Quiz, homework, and video assignments

Week	Date	Online Quiz	Homework	Videos/Lecture Notes
1	1-25 1-27 1-29			Chapter 9
2	2-01 2-03 2-05	Q1 – Chapter 9		Chapter 10
3	2-08 2-10 2-12	Q2 - Chapter 9	H1 - Chapter 9, H2 - Chapter 9	Chapter 11
4	2-15 2-17 2-19	Q3 – Chapter 10	H3 – Chap 9	
5	2-22 2-24 2-26	**Exam 1**	H4 – Chapter 10	Chapter 12
6	3-01 3-03 3-05	Q4 – Chapter 12	H5 – Chapter 12	
7	3-08 3-10 3-12	Q5 - Chapter 12	H6 - Chapter 12	
8	3-15 3-17 3-19	Q6 - Chapter 13	H7 - Chapter 12	Chapter 13
9	3-22 3-24 3-26	**Spring Recess**		
10	3-29 3-31 4-02	Q7 - Chapter 13	H8 – Chapter 13	Bode Plots – Appendix E
11	4-05 4-07 4-09	Q8 – Bode Diagrams	H9 – Bode Diagrams	
12	4-12 4-14 4-16	**Exam 2**	H10 – Bode Diagrams	Chapter 14
13	4-19 4-21 4-23	Q9 – Chapter 14	H11 – Chapter 14	Chapter 15
14	4-26 4-28 4-30	Q10 - Chapter 15	H12 - Chapters 14 & 15	Chapter 16
15	5-03 5-05 5-07	Q11 – Chapter 16	H13 – Chapter 16	
16	5-10 5-12 5-14	Q12 - Chapter 16	H14 - Chapter 16	
17	5-17	**Final Exam**		

ECS Moodle Tips and Hints

1. The homework is available three weeks prior to the due date. You can "Submit" the homework as many times as you wish with the highest grade counting to your course score. I suggest you start the homework early and bring questions into class. You will NOT be able to see any assignment you did not complete (by submitting the assignment).

2. All quizzes are ONE submission only. The quiz is available every Wednesday from 6 am to 11:59 pm. During the quiz you will be able to "check" your answer. Wrong answers will receive a penalty of about 33% and you will be allowed at least three tries for each part of a problem. The computer will automatically submit your quiz at the end of the 60 minutes allowed for the quiz.

3. All exams are ONE submission only at the scheduled class time. During the exam you will be able to "check" your answer. Wrong answers will receive a penalty of about 33% and you will be allowed up to three tries for each part of a problem. The computer will automatically submit your exam at the end of the 60 minutes allowed for the exam. You must quickly send me your original work for my review if you feel a question was scored incorrectly or incompletely.

4. Periodically review your grade in the Moodle Gradebook. Bring to my attention any error or anomaly as soon as possible.

Entering questions answers into Moodle:

In most cases, you will be entering a number into Moodle as the answer to a calculation.

The following table shows you acceptable and not acceptable forms of an answer.

Intended Answer	Acceptable alternatives	Non-Acceptable
0.5	.5, 0.5, 0.500, 5e-1, 5E-1	1/2, 50%, 10/20, 20/40, ….
10,000	10000, 10E3, 10e3	10,000 (no comma allowed)
-40	-40, -40.00, -4E1, -4e1	
π (pi)	3.14159 (as many digits as you care to use)	pi
Algebraic symbols	I will not ask you to enter equations symbolically into Moodle.	Do not enter common math symbols such as +, -, X, /, ln, e, and so on as an equation. 2+2 is not acceptable, enter "4" 2-2 is not acceptable, enter "0" And so on.

Pre-requisites topics (assumed prior knowledge by all 117 students).

ENGR 17.   Introductory Circuit Analysis.3 Units
Prerequisite(s): PHYS 11C, MATH 45; either the math or physics may be taken concurrently, but not both.
Term Typically Offered: Fall, Spring, Summer
Writing of mesh and node equations. DC and transient circuit analysis by linear differential equation techniques. Application of laws and theorems of Kirchoff, Ohm, Thevenin, Norton and maximum power transfer. Sinusoidal analysis using phasors, average power.

CPE 64.   Introduction to Logic Design.4 Units
Prerequisite(s): CSC 15 or CSC 25 or ENGR 50.
General Education Area/Graduation Requirement: Understanding Personal Development (E)
Term Typically Offered: Fall, Spring
Covers the following topics: logic gates, binary number system, conversion between number systems, Boolean algebra, Karnaugh maps, combinational logic, digital logic design, flip-flops, programmable logic devices (PLDs), counters, registers, memories, state machines, designing combinational logic and state machines into PLDs, and basic computer architecture. Lab emphasizes the use of software equation entry design tools, the use of a schematic entry, and the use of a logic simulation design tool. Lab assignments are design-oriented. Lecture three hours; laboratory three hours.

Cross listed: EEE 64